VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a major, municipal permit, with three design flow tiers (0.75, 0.99 and 2.0 MGD). This reflects the new addition of two future planned design flow tiers (0.99 and 2.0 MGD). The facility will be operated as a minor, municipal facility at the two lower flow tiers, and as a major, municipal facility at the highest flow tier. The permit designation is based on the highest design flow tier. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260 et seq. The discharge results from the operation of a publicly owned wastewater treatment plant. The facility discharges to the Chowan River/Dismal Swamp watershed. This permit action consists of updating the permit to reflect the two new design flow tiers, changes in Water Quality Standards, Guidance Memos, and the VPDES Permit Manual, revisions to limitations (pH, total residual chlorine, total recoverable zinc, total recoverable copper, $CBOD_5$ loading, and addition of new limitations (*E. coli* and total phosphorus for the new flow tiers).

1. Facility Name and Location: Three Creek Wastewater Treatment Facility (WWTF)
428 Moonlight Road
Emporia, VA 23847

Owner Name: Greensville County Water & Sewer Authority (GCWSA)
Owner Facility/Mailing Address: 1781 Greensville County Circle
Emporia, Virginia 23847

Owner/Facility Contacts:

James Warf	Clifford Brown
Superintendent of Public Utilities	Chief Wastewater Treatment Plant Operator
(434) 348-4245	(434) 634-6094
jwarf@gcwsa.com	threecreek@telpage.net

2. Permit No. VA0077259 Permit Expiration Date: September 29, 2012

3. Application Complete Date: June 27, 2012 (administratively) and August 8, 2012 (technically/totally)
Permit Drafted By: Tamira Cohen June 28, 2012
DEQ Regional Office: Piedmont
Reviewed By: Emilee Carpenter Date: July 11, 2012
Curt Linderman Date: July 16, 2012
Kyle Winter Date: July 25 2012

4. Receiving Stream:

	Outfall 001
Name:	Three Creek
River Mile:	5ATRE031.81 (see **Attachment A**)
Subbasin/Basin:	Chowan River/Chowan River & Dismal Swamp
Section:	2b (as per 9VAC25-260-470) Swamp waters in Section 2b (Nottoway River and free-flowing tributaries)
Class:	VII (Swamp waters)
Special Standards:	None

7-Day, 10-Year Low Flow: 0.067 MGD	7-Day, 10-Year High Flow: 1.4 MGD
1-Day, 10-Year Low Flow: 0.048 MGD	1-Day, 10-Year High Flow: 1.2 MGD
30-Day, 5-Year Low Flow: 0.32 MGD	30-Day, 10-year Low Flow: 2.2 MGD
30-Day, 10-year Low Flow: 0.17 MGD	Harmonic Mean Flow: 1.4 MGD
Tidal? No	On 303(d) list? Yes (Category 5A)

See Flow Frequency Memo (**Attachment A**)

5. Operator License Requirements: The recommended attendance hours by a licensed operator and the minimum daily hours that the treatment works should be manned by operating staff are contained in the Sewage Collection and Treatment Regulations (SCAT) 9 VAC 25-790 et seq. A Class II licensed operator is required for the facility.

6. Reliability Class: Reliability is a measurement of the ability of a component or system to perform its designated function without failure or interruption of service. The reliability classification is based on the water quality and public health consequences of a component or system failure. The permittee is required to maintain Class II Reliability for the existing facility (0.75 MGD) and Class I Reliability for the future planned design flow tiers (0.99 and 2.0 MGD).

7. Permit Characterization:

	Discharge to Chesapeake Bay		Discharge subject to Watershed GP		Nutrient load limits addressed in Watershed GP
	Issuance	X	Reissuance		Revoke & Reissue
X	Existing Discharge		Proposed Discharge		
	Owner Modification		Board Modification		Ownership/Name Change Effective Date:
X	Municipal, SIC Code(s): **4952**		Industrial, SIC Code(s):		
X	POTW		PVOTW		
	Private		Federal		State
X	Effluent Limited	X	Water Quality Limited	X	Whole Effluent Toxicity (WET) Program Required *(2.0 MGD only)*
					WET Limited
X	Interim Limits in Permit		Interim Limits in Other Document (attached)	X	Compliance Schedule Required
	Variance to WQ Standards		Water Effects Ratio	X	Discharge to 303(d) Listed Segment
	Toxics Reduction Evaluation		Possible Interstate Effect		Storm Water Management Plan

8. Wastewater Flow and Treatment: Table 1

Outfall Number	Wastewater Source	Treatment	Flow
001 (existing)	Domestic wastewater from residential and light commercial/industrial, significant industrial (Boar's Head Provisions – Jarratt).	Screening, grit removal, flow equalization, extended aeration activated sludge, clarification, chlorine disinfection, dechlorination, and post aeration.	0.75 MGD design capacity
001 (planned)	Domestic wastewater from residential and light commercial/industrial, significant industrial (Boar's Head Provisions – Jarratt).	Screening, grit removal, flow equalization, [*extended aeration activated sludge, biological process basins*]*, clarification, UV disinfection, and post aeration.	0.99 MGD/2.0 MGD design capacity

*Complete treatment process including biological process unit(s) are conceptual at the time of the 2011/12 permit application. The treatment process units will be designed to comply with the 2012 permit reissuance requirements for each design flow tier and will be finalized with the applicable CTC/CTO issuances.

See **Attachment B** for facility diagrams.

9. Sludge Disposal: Sludge is currently processed using Aerobic Digesters, decanted, then dewatered via drying beds. The drying beds are currently being taken out of service and replaced with a centrifuge housed in a newly constructed Biosolids building. Digesters will be expanded as a part of the 2.0 MGD upgrade. Dried sludge is trucked to the Greensville County Sanitary Landfill (solid waste permit no. VA405) for disposal. Eighty-six dry metric tons per year of sewage sludge is generated at the facility. Sludge is received from two offsite locations: Falling Run WWTP (19.6 dry metric tons per year) and Skippers WWTF (4.0 metric tons per year). Falling Run decants the sludge in a digester and Skippers digests the sludge prior to hauling. See **Attachment B**.

10. Discharge Location Description: Emporia Quad (008A) (See **Attachment B** for topographic and aerial maps).

11. Material Storage: Chlorine and sulfur dioxide cylinders (150 lbs) are secured by chains in separate buildings that provide adequate ventilation and protection from weather. Soda ash is stored with adequate weather protection in the pump station building and stored on a pallet under the shelter covering the non-operational sludge drying bed. Magnesium hydroxide, currently in use during a pilot program, is also stored in totes in the influent/RAS pump station with adequate weather protection.

12. Ambient Water Quality Information: The ambient water quality data used in this analysis for Outfall 001 are from a monitoring station located on Three Creek at the Route 622 bridge, approximately 5 miles downstream of the discharge (river mile 5ATRE026.75). See **Attachment A**.

13. Antidegradation Review and Comments: The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect those uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters. The antidegradation review begins with a Tier determination. Three Creek is considered a Tier 1 water based on previous modeling efforts and the seepage of hypolimnetic waters (See **Attachments A** and **C).**

14. 303(d) Listed Segments (TMDL): This facility discharges directly to Three Creek.

    During the 2010 305(b)/303(d) assessment cycle, the receiving stream was considered a Category 5A water (A Water Quality Standard is not attained. The water is impaired or threatened for one or more designated uses by a pollutant(s) and requires a TMDL (303d list)). The Fish Consumption Use is impaired due to a VDH fish consumption advisory for mercury. The Aquatic Life Use is fully supporting with observed effects because the segment is subject to low summertime dissolved oxygen caused by the seepage of hypolimnetic waters from beneath Slagles Lake dam. The Wildlife Use is fully supporting. The Recreation Use was not assessed. The discharge has not been addressed in any currently-approved TMDL.

    Effluent monitoring completed for the 2012 reissuance application did not indicate any mercury at detectable levels and thus mercury was considered absent from the effluent. In accordance with past and current DEQ assessments, the permit limits of 10 mg/L $cBOD_5$, 3.0 mg/L TKN, and 6.5 mg/L DO should provide a self-sustaining effluent that will not cause or contribute to existing DO violations. 2009 to 2012 DMR data indicate high DO and low $cBOD_5$ and TKN levels. Consequently, the facility is not expected to cause or contribute to observed violations or impairments The permit contains a re-opener condition that may allow these limits to be modified, in compliance with section 303(d)(4) of the Clean Water Act once a TMDL is approved.

    See **Attachment A**.

15. Site Inspection: Date: 8/16/2012 Performed by: Heather Horne and Meredith Williams
    See Inspection Report (**Attachment D**).

16. Effluent Screening and Limitation Development:

a. Limitations: Design Flow of 0.75 MGD

PARAMETER	BASIS	DISCHARGE LIMITS				Monitoring Requirements	
		MO AVG	WK AVG	MIN	MAX	FREQ	SAMPLE TYPE
001 Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
002 pH	1,2	NA	NA	6.0 s.u.	8.0 s.u.	1 per D	Grab
004 Total Suspended Solids (TSS)	5	20 mg/L 57 kg/d	30 mg/L 85 kg/d	NA	NA	3 D per WK	8 HC
005 Total Residual Chlorine (TRC)	4	0.0081 mg/L	0.0091 mg/L	NA	NA	3 per D at 4-Hr intervals	Grab
007 Dissolved Oxygen (DO)	3	NA	NA	6.5 mg/L	NA	1 per D	Grab
068 Total Kjeldahl Nitrogen (TKN)	3	3.0 mg/L 8,500 g/d	4.5 mg/L 13,000 g/d	NA	NA	3 D per WK	8 HC
120 *E. coli*	2	126 N/100 mL geometric mean	NA	NA	NA	4 per Month (10am-4pm)	Grab
159 5-Day Carbonaceous Biochemical Oxygen Demand ($cBOD_5$)	3	10 mg/L 28 kg/d	15 mg/L 42 kg/d	NA	NA	3 D per WK	8 HC
196 Total Recoverable Zinc *(Interim)*	4	0.068 mg/L	0.068 mg/L	NA	NA	1 per Month	Grab
196 Total Recoverable Zinc *(Final)*	4	0.060 mg/L	0.060 mg/L	NA	NA	1 per Month	Grab
203 Total Recoverable Copper	4	0.0060 mg/L	0.0060 mg/L	NA	NA	1 per Month	Grab
328 Dissolved Sulfide (mg/L)	5	NL	NL	NA	NA	1 per 6 Months	Grab
157 TRC*	5	NA	NA	1.0 mg/L	NA	3 per D at 4-Hr intervals	Grab
213 TRC*	5	NA	NA	0.60 mg/L	NA		

*157 and 213 TRC samples are taken prior to dechlorination (they are not final effluent)

1. Federal Effluent Guidelines.
2. Water Quality Standards.
3. 2002 Stream Sanitation Analysis – see **Attachment C**.
4. Water Quality Based Effluent Limitations.
5. Best Professional Judgment.

b. Limitations: Design Flow of 0.99 MGD

PARAMETER	BASIS	DISCHARGE LIMITS				Monitoring Requirements	
		MO AVG	WK AVG	MIN	MAX	FREQ	SAMPLE TYPE
001 Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
002 pH	1,2	NA	NA	6.0 s.u.	8.0 s.u.	1 per D	Grab
004 Total Suspended Solids (TSS)	5	10 mg/L 37kg/d	15 mg/L 56 kg/d	NA	NA	3 D per WK	8 HC
007 Dissolved Oxygen (DO)	3	NA	NA	6.5 mg/L	NA	1 per D	Grab
012 Total Phosphorus	3	2.5 mg/L	NA	NA	NA	1 per 2 WKs	8 HC
068 Total Kjeldahl Nitrogen (TKN)	3	3.0 mg/L 11 kg/d	4.5 mg/L 17 kg/d	NA	NA	3 D per WK	8 HC
120 *E. coli*	2	126 N/100 mL geometric mean	NA	NA	NA	3 D per WK (10am-4pm)	Grab
159 5-Day Carbonaceous Biochemical Oxygen Demand ($cBOD_5$)	3	10 mg/L 37 kg/d	15 mg/L 56 kg/d	NA	NA	3 D per WK	8 HC
196 Total Recoverable Zinc	4	0.060 mg/L	0.060 mg/L	NA	NA	1 per Month	Grab
203 Total Recoverable Copper	4	0.0063 mg/L	0.0063 mg/L	NA	NA	1 per Month	Grab
328 Dissolved Sulfide (mg/L)	5	NL	NL	NA	NA	1 per 6 Months	Grab

1. Federal Effluent Guidelines.
2. Water Quality Standards.
3. 2012 Stream Sanitation Analysis – see **Attachment C**.
4. Water Quality Based Effluent Limitations.
5. Best Professional Judgment.

c. Limitations: Design Flow of 2.0 MGD

PARAMETER	BASIS	DISCHARGE LIMITS				Monitoring Requirements	
		MO AVG	WK AVG	MIN	MAX	FREQ	SAMPLE TYPE
001 Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
002 pH	1,2	NA	NA	6.0 s.u.	8.0 s.u.	1 per D	Grab
004 Total Suspended Solids (TSS)	5	10 mg/L 76 kg/d	15 mg/L 110 kg/d	NA	NA	5 D per WK	24 HC
007 Dissolved Oxygen (DO)	3	NA	NA	6.5 mg/L	NA	1 per D	Grab
012 Total Phosphorus	3	2.5 mg/L	NA	NA	NA	1 per WK	24 HC
068 Total Kjeldahl Nitrogen (TKN)	3	3.0 mg/L 23 kg/d	4.5 mg/L 34 kg/d	NA	NA	5 D per WK	24 HC
120 *E. coli*	2	126 N/100 mL geometric mean	NA	NA	NA	5 D per WK (10am-4pm)	Grab
159 5-Day Carbonaceous Biochemical Oxygen Demand ($cBOD_5$)	3	10 mg/L 76 kg/d	15 mg/L 110 kg/d	NA	NA	5 D per WK	24 HC
196 Total Recoverable Zinc	4	0.059 mg/L	0.059 mg/L	NA	NA	1 per Month	24 HC
203 Total Recoverable Copper	4	0.0063 mg/L	0.0063 mg/L	NA	NA	1 per Month	24 HC
328 Dissolved Sulfide (mg/L)	5	NL	NL	NA	NA	1 per 6 Months	Grab
704 Toxicity, Acute (%) [*C.dubia*]	5	NA	NA	NA	NL	1 per 3 Months	24 HC
705 Toxicity, Acute (%) [*P.promelas*]	5	NA	NA	NA	NL	1 per 3 Months	24 HC
720 Toxicity, Chronic (TU_C) [*C.dubia*]	5	NA	NA	NA	NL	1 per 3 Months	24 HC
721 Toxicity, Chronic (TU_C) [*P. promelas*]	5	NA	NA	NA	NL	1 per 3 Months	24 HC

1. Federal Effluent Guidelines.
2. Water Quality Standards.
3. 2012 Stream Sanitation Analysis – see **Attachment C**.
4. Water Quality Based Effluent Limitations.
5. Best Professional Judgment.

d. Effluent Screening and Limitation Development:
See **Attachment E** for effluent data summary tables submitted in the Discharge Monitoring Reports (DMRs) and the application, as well as the evaluations for several pollutants of concern. Included in **Attachment E** are the MSTRANTI printouts with WLAs and applicable STATS.exe analyses.

Limitation evaluation begins with a wasteload allocation analysis using MSTRANTI version 2b (a DEQ excel spreadsheet). Acute and chronic waste load allocations are calculated from criteria for

surface water given in the VA Water Quality Standards (9VAC 25-260-140). Statistically derived permit limits are then obtained by inputting these acute and chronic waste load allocations along with reported data or default data values (see below) and required quantification limits into the DEQ statistical program (STATS.exe). Monitoring frequencies used in STATS.exe are those required in the current 2012 permit reissuance for each design flow tier.

NH_3: Normally, an ammonia default data value of 9.00 mg/L is used in place of effluent data in accordance with DEQ Guidance Memo No. 00-2011 since it is known to be present in domestic effluents and thus a reasonable potential exists for any domestic facility to cause or contribute to a violation of the VA Water Quality Standards. A default value of 3.00 mg/L, the permit TKN monthly average limitation, was used in these analyses given that ammonia levels may not exceed this limitation.

(all flow tiers): The STATS.exe determined NH_3 monthly average limitations of 2.72 mg/L (0.75 MGD), 2.46 mg/L (0.99 MGD), and 1.91 mg/L (2.0 MGD) are all less stringent than 60% of the required TKN limitations or 1.80 mg/L. In accordance with the 1/31/2012 PRO Staff QA/QC feedback, an ammonia limitation is thus not required as the TKN limitation is sufficiently protective of water quality based on ammonia toxicity. See **Attachment E**.

TRC (parameter code 005): . The limitation evaluation was conducted as described above. A TRC default data value of 20 mg/L, in accordance with VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3), was used to force a limit since chlorination is the means of disinfection. Since chlorine is a known toxicant and purposefully introduced into the effluent, a chlorine limit is required.

(0.75 MGD): The TRC monthly and weekly average limitations of 0.0081 mg/L and 0.0091 mg/L, respectively are more stringent than the 2007 permit reissuance limitations due to the current requirement for more frequent monitoring used in the current STATS.exe analysis. The permittee has demonstrated compliance with these new limitations and the limitations represent the same statistical distribution as in the 2007 permit reissuance; therefore a schedule of compliance is not warranted for this parameter. See **Attachment E**.

(0.99 MGD and 2.0 MGD): TRC limitations and authorization to utilize chlorine disinfection will not be in effect for the facility upgrade(s) given the existing chlorine disinfection system will be decommissioned and UV disinfection with full UV system redundancy will be installed. See correspondence from permittee's consultant dated 7/17/2012 in **Attachment I**.

pH *(all flow tiers)*: The pH limitation range in the current 2012 permit reissuance is 6.0-8.0 Standard Units (SU). A pH limitation of 3.7-8.0 SU is assigned to all Class VII waters in accordance with VA Water Quality Standards (WQS), 9VAC 25-260-50, effective January 6, 2011. The limitation range in the 2007 permit reissuance was 6.0-9.0 SU, based on the VA Water Quality Standards adopted in September 11, 2007 and federal effluent guidelines for secondary treatment (40 CFR 133.102). The maximum pH limitation (8.0 SU) is more stringent than in the 2007 permit reissuance in accordance with the 2011 VA WQS. Federal effluent guidelines and anti-backsliding regulations prevent the relaxation of the minimum limitation to the lower end of the water quality criteria range for Class VII waters. Since facility effluent data (see **Attachment E**) is already within this new limitation range, a compliance schedule is not warranted.

$cBOD_5$ *(all flow tiers)*: The $cBOD_5$ monthly and weekly average limitations of 10 mg/L and 15 mg/L, respectively are carried forward from the 2007 permit reissuance. These limitations are in accordance with the recommended limitations presented in the stream sanitation analysis for the 0.75 MGD facility summarized in memorandum dated August 14, 2002 (J. Palmore) and for the 0.99 and 2.0 MGD flow tiers summarized in memorandum dated January 24, 2012 (see **Attachment C)**. These limitations are in compliance with federal effluent limit guidelines for secondary treatment (40 CFR 133.102). The monthly and weekly loading limitations for each of the three design flow tiers, based on the above concentration limitations, are given above in Tables 17.a to c. Please note that the 0.75 MGD weekly loading limitation has been revised from 43 kg/d in the 2007 per permit

reissuance to 42 kg/d in the current 2012 permit reissuance. A rounding error was made in the 2007 calculation which is corrected in the 2012 reissuance (42.58125 rounds to 42 as only the first digit following the last significant figure to be reported is considered and when that digit is 5, the preceding digit is rounded to the nearest even number) in accordance with DEQ GM06-2016.

TSS:
(0.75 MGD): While the 2002 Stream Sanitation Analysis recommended a TSS monthly average limitation of 10 mg/L consistent with DEQ OWP&CA guidance for discharges to swamp and marsh waters, a variance to 20 mg/L was approved with the 2002 permit revocation and reissuance and carried forward in the 2007 permit reissuance. The variance was authorized in accordance with federal guidance and permit regulations and based on information submitted by the permittee indicating the installed treatment technology for meeting the $cBOD_5$ limits of 10 mg/L was incapable of meeting the 10 mg/L TSS limit. The 20 mg/L monthly average limitation is carried forward to the 2012 permit reissuance for the 0.75 MGD flow tier.

(0.99 and 2.0 MGD): The monthly average limitation for the design flow tiers of the upgraded facility will be set to 10 mg/L in accordance with the recommended TSS limitation provided in the 2007 Stream Sanitation Analysis (consistent with DEQ OWP&CA guidance for discharges to swamp and marsh waters). The previous variance will not be carried forward as the permittee is expected to install appropriately designed treatment during the planned facility upgrades which will meet this limitation.

The weekly average concentrations (based on 1.5 times the monthly average limitation as per EPA guidance), and monthly/weekly loading limitations (based on respective design flows and concentration limitations) are given above in Tables 17.a to c.

The 2007 and current 2012 permit limitations are in compliance with federal effluent limit guidelines for secondary treatment (40 CFR 133.102).

See **Attachments C**.

Total Phosphorus *(0.99 MGD and 2.0 MGD)*: A total phosphorus limitation of 2.5 mg/L was added to the upgraded flow tiers in accordance with the 2012 Stream Sanitation Analysis (See **Attachment C**). This limitation is the expected concentration associated with installed secondary treatment (DEQ GM 07-2008, amendment 2, page 7) and therefore expected to be achievable if the facility is operated as designed.

DO *(all flow tiers)*: The DO minimum limitation of 6.5 mg/L is carried forward from the 2007 permit reissuance and is in accordance with the recommended limitations presented in the 2002 and 2012 Stream Sanitation Analyses.

DMR data submitted during 2009 to 2012 demonstrate that the facility has been in compliance with this limitation (see **Attachment E)**. In accordance with 9VAC 25-260-60, VPDES limitations in Class VII waters shall not cause significant changes to the naturally occurring DO and pH fluctuations in these waters. The limitation is expected to maintain consistency with this narrative criterion for DO. See **Attachments C and E**.

E. coli (all flow tiers): As per the 2011/12 permit application and telephone conversation with the permittee's design engineer, UV disinfection will be installed with the 0.99 and 2.0 MGD upgrades. An *E. coli* limitation of 126 N/100 mL (monthly geometric mean) is therefore added to the 2012 permit reissuance for the 0.99 and 2.0 MGD flow tiers. This limitation is also added to the existing 0.75 MGD flow tier (surrogates not used for major municipal permits in accordance with the current VPDES Permit Manual [GM10-2003, revised August 25, 2011, Section MN-2] and 1/31/2012 DEQ PRO Staff Decision) given the permit is reclassified as a major municipal permit with this 2012 reissuance.). All sewage discharges must be disinfected to achieve applicable bacterial concentrations in accordance with VA Water Quality Standards, 9VAC 25-260-170. *E. coli* is the

bacterial indicator for sewage effluents to freshwater. *E. coli* is included as a conditional limitation in Part I.B.1 of the 2012 permit reissuance should chlorine disinfection not be used.

TRC (parameter codes 157 and 213) *(0.75 MGD)*: Limits are carried forward from the 2007 permit (2012 permit reissuance special condition Part I.B.). See Item #20 for special condition rationale. In accordance with the installation of UV disinfection with full UV redundancy for the 0.99 and 2.0 MGD facility upgrades, the 2012 permit reissuance does not authorize chlorine disinfection and thus TRC contact tank limitations are not included as conditional limits for the two new flow tiers (See TRC effluent limitation discussion above and **Attachment I** for additional comments).

Copper and Zinc *(all flow tiers)*: The facility has had difficulty meeting the copper and zinc limitations that went into effect in 2011 following the four year compliance schedule provided with the 2007 permit reissuance. The permittee completed the design phase of a copper and zinc reduction project to address these elevated concentrations in November 2011 (see **Attachment F**). A CTC for modifications to the existing blower system and construction of a Biosolids Building and centrifuge (included in Phase I and II of the copper zinc reduction project) was issued January 17, 2012 (PTLog #25485). The permittee has also performed various operational adjustments including reducing the solids retention time (for a younger sludge) to enhance metal adsorption and flocculation, and reduction and better control of DO in the aeration basins to prevent metal release to solution via cell lysis and polymer/floc degradation. The permittee is also studying replacement of soda ash with magnesium hydroxide for alkalinity adjustments based on the theory that monovalent cations such as Na^{+} could be promoting floc deterioration (and thus metal dissolution) while divalent cations such as Mg^{++} may enhance floc formation and thus metal adsorption and removal.

The data value of 17.2 µg/L for copper and 71 µg/L for zinc reported in the 2011/12 permit application were evaluated and result in monthly and weekly average limitations of 0.0063 mg/L (6.3 µg/L) and 0.060 mg/L (60 µg/L), respectively. The copper limitation of 0.0060 mg/L will be carried forward from the 2007 permit reissuance to the 2012 permit reissuance (for the existing flow tier of 0.75 MGD) due to Antibacksliding regulations which prevent the relaxation of this limitation, but shall be 0.0063 mg/L for the 0.99 MGD and 2.0 MGD flow tiers (Antibacksliding regulations are not applicable – See Item #17 below). The zinc limitation for the 2012 permit reissuance will be 0.060 mg/L in accordance with the above noted evaluation for the existing flow tier. Given that the permittee is encountering difficulties complying with the existing 2007 permit limitation (0.068 mg/L), a 4-year compliance schedule is included. The zinc limitations for the 0.99 MGD and 2.0 MGD flow tiers are 0.060 mg/L and 0.059 mg/L, respectively. See **Attachment E**.

Dissolved Sulfide *(all flow tiers)*: Monitoring only is required for this parameter. During the permit application process and the 2007-2012 permit term, calculated hydrogen sulfide was reported rather than total dissolved sulfides in the effluent. Through a conversion method, dissolved sulfides measured in the effluent are used in an attempt to assess potential hydrogen sulfide (H_2S) levels. However, the accuracy and precision of using sulfide data for developing limits for H_2S have recently come under question. According to Standard Methods, the unionized H_2S "can be calculated from the concentration of dissolved sulfide, the sample pH, and the conditional ionization constant of H_2S." Based on the above, it now appears to be more appropriate to specify that results be reported as dissolved sulfide. To provide data to evaluate the potential and accurate presence of H_2S and need for a limit, dissolved sulfide monitoring is being required once per six months by grab sample for this 2012 permit reissuance.

Other Parameters *(all flow tiers)*: The facility reported data for chloride (73 mg/L) and nickel (3.2 µg/L) in the 2011/12 permit application. Evaluation of this data did not result in permit limitations. The January 2011 application submittal showed data for free cyanide using an unapproved method (Standard Methods, 20th edition 4500 CNH). Additional data was submitted August 8, 2012 showing free cyanide at <0.010 mg/L using a recent EPA approved 40CFR136 method (May 18, 2012). 0.010 mg/L is the DEQ required quantification level and free cyanide is thus considered absent from the effluent for the purposes of this evaluation. See **Attachment E.**

Human Health Evaluation: Data for chloride, antimony, total chromium, copper, nickel, zinc and chloroform reported in the 2011/12 permit application were also evaluated in relation to Human Health Standards and Human Health Standards for Public Water Supplies (although the public water supply special standards does not apply to the receiving stream). Reported values are far below the wasteload allocations for these parameters (see **Attachment E**). No limitations are required based on this evaluation.

Radionuclides: In the application, data was reported although not required since only Human Health Standards for Public Water Supplies (HHS-PWS) apply and as stated above, the receiving stream is not a public water supply. Although the standards do not apply, a comparison was performed for information purposes. Data was reported for Beta Particle and Photon Activity in units of concentration (pCi/L) whereas the HHS-PWS is expressed as an exposure in terms of mrem/yr. The EPA has established this same standard for community potable water systems. Federal regulation (40 CFR Part 141) states that compliance with the potable water standard may be assumed if the average annual concentration of Beta Particle and Photon Activity is less than 50 pCi/L and the average annual concentrations of Tritium and Strontium-90 are less than 20,000 o/cu/L and 8 pCi/L, respectively. Tritium (<147 pCi/L) and Strontium-90 (<1 pCi/L) are both reported below quantification levels. Gross beta activity (17.8 pCi/L) is below the above noted level.

All other parameters were reported below DEQ required quantification levels and thus considered absent for the purposes of this evaluation.

Monitoring Frequencies
All sampling frequencies were selected based on the VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-2) recommendations. The facility does not qualify for reduced monitoring given enforcement action within the last 3 years including two notice of violations (NOVs) for alleged exceedences of Cu, Zn, and TSS (W2012-05-P-0003, 6/5/2012 and W2012-03-P-0002, 3/6/2012) and one warning letter (W2011-12-P-1002, 12/6/2011) for alleged exceedence of Cu.

17. Antibacksliding Statement: The copper limitation for the new 0.99 MGD and 2.0 flow tiers is less stringent limitation than for the existing 0.75 MGD facility's design flow in the 2007 permit reissuance. Given the substantial alteration to the facility for the new flow tiers and new available information (effluent and ambient water quality data, and stream flow frequency data that were not available at the time of 2007 permit reissuance), Antibacksliding regulations do not apply. All other limitations are at least as stringent as in the previous 2007 permit reissuance.

18. Compliance Schedules: A four year schedule of compliance was added for the more stringent zinc limitation in accordance with the VPDES Permit Manual guidance (GM10-2003, revised August 25, 2011, Sections III and MN-1). See Item #16.d above for additional comments.

19. Additional Limitations and Monitoring Requirements – Part I.B.
Required by Sewage Collection and Treatment Regulations, 9VAC25-790 and Virginia Water Quality Standards 9 VAC 25-260-170, Bacteria; other recreational waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This special condition ensures proper operation of chlorination equipment to maintain adequate disinfection (0.75 MGD facility, Part I.B).

20. Special Conditions
Part I.C.1: 95% Capacity Reopener
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 4 for all POTW and PVOTW permits.

Part I.C.2: Indirect Dischargers
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 1 and B 2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

Part I.C.3: CTC, CTO Requirement

Rationale: Required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790.

Part I.C.4: O&M Manual Requirement
Rationale: Required by Code of Virginia § 62.1-44.19; Sewage Control and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190 E.

Part I.C.5: Materials Handling/Storage
Rationale: 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

Part I.C.6: Licensed Operator Requirement
Rationale: The VPDES Permit Regulation, 9 VAC 25-31-200 C and the Code of Virginia § 54.1-2300 et seq., Rules and Regulations for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals (18 VAC 160-20-10 et seq.), require licensure of operators.

Part I.C.7: Reliability Class
Rationale: Required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all municipal facilities.

Part I.C.8: Sludge Reopener
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-220 C for all permits issued to treatment works treating domestic sewage.

Part I.C.9: Sludge Use and Disposal
Rationale: VPDES Permit Regulation, 9 VAC 25-31-100 P, 220 B 2, and 420 through 720; and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on sludge use and disposal practices and to meet specified standards for sludge use and disposal.

Part I.C.10. Reopeners
Rationale:

a. Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed it they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.
b. VPDES Permit Regulation, 9VAC25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of water quality criteria

Part I.C.11: Closure Plan
Rationale: Code of Virginia § 62.1-44.19 of the State Water Control Law. This condition establishes the requirement to submit a closure plan for the wastewater treatment facility if the treatment facility is being replaced or is expected to close.

Part I.C.12: Compliance Reporting
Rationale: Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limitation or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values. Zinc and copper QLs are included as per the DEQ MSTRANTI target (SSTV) values included in **Attachment E.**

Part I.C.13: Pretreatment (Significant Discharger Survey)
Rationale: VPDES Permit Regulation, 9 VAC 25-31-730 through 900, and 40 CFR Part 403 require certain existing and new sources of pollution to meet specified regulations. The permittee is being required to submit an industrial survey no later than one year from the effective date of the permit and no later than one year from CTO issuance for any of the planned flow upgrades (i.e. 0.99 MGD facility and 2.0 MGD facility upgrades). This will serve to encourage the permittee to keep industrial user information up to date and begin planning for any future pretreatment program that will be required in accordance with this special condition.

Part I.C.14: Compliance Schedule
Rationale: 9VAC25-31-250 allows for schedules of compliance, when appropriate, which will lead to compliance with the Clean Water Act, the State Water Control Law and regulations promulgated under them.

Part I.C.15: Water Quality Criteria Monitoring
Rationale: State Water Control Law § 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. In accordance with the VPDES Permit Manual guidance (GM10-2003, revised August 25, 2011, Section MN-3.A), and to ensure that water quality criteria are maintained, the permittee is required to analyze the facility's effluent for the substances noted in Attachment A (DEQ Water Quality Criteria Monitoring) of this VPDES permit no later than two years following issuance of a CTO for the 0.99 MGD facility and no later than two years following issuance of a CTO for the 2.0 MGD facility. The data is to be reported on Attachment A of the permit and submitted no later than two years following the issuance of a CTO for (i) the 0.99 MGD facility, and (ii) the 2.0 MGD facility, or (iii) with the permit reissuance application if that application due date is less than two years after the issuance of the CTO.

Part I.D: Whole Effluent Toxicity Testing
Rationale: VPDES Permit Regulation, 9 VAC25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. In accordance with the Toxics Management Program Implementation Guidance (GM00-2012), WET testing is required for all POTW's with design flows ≥1.0 MGD. Accordingly, WET testing is included in this 2012 permit reissuance within 6 months (as recommended in GM00-2012) of issuance of a CTO for the 2.0 MGD facility. See **Attachment G** for TMP Memorandum to containing program recommendations proposed language approved by DEQ OWP&CA. The reporting schedule (Part I.D.2) was adjusted to ensure consistency with general permit reporting requirements (report due no later than the first complete calendar quarter following CTO issuance).

Part II: Conditions Applicable to All VPDES Permits
The VPDES Permit Regulation at 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

21. Changes to 2007 Permit:

Changes to Cover Page		
Changes	**Rationale**	**Date**
Facility Name	Revised WWTF to Wastewater Treatment Facility for clarity.	7/2012
Facility Location	Revised to include the complete address in accordance with the 2011/12 permit application.	7/2012
Receiving stream section and class	Receiving Stream Section changed from Section 2L to Section 2b in accordance with stream re-designation (9VAC25-260) following the 2007 permit reissuance.	7/2012
Signatory	Added "Piedmont Regional Office" for completeness.	7/2012

Changes to Part I.A.1 (NA-Not Applicable; NL-No Limit; NC-No Change; NR-Not Required)						
Parameter Changed	**Effluent Limits Changed**		**Monitoring Requirement Changed**		**Rationale**	**Date**
	From	**To**	**From**	**To**		
Flow	NC	NC	Totalizing, Indicating and Recording	TIRE with legend entry	Revised for consistency.	7/2012
pH (MAX)	9.0	8.0	NC	NC	Revised in accordance with VA Water Quality Standards, 9VAC 25-260-50. See Item #16 for additional comments.	7/2012
TKN (MO Avg Loading) (WK Avg Loading)	kg/d: 8.5 13	g/d: 8,500 13,000	NC	NC	Revised to express MO Avg limitation in whole numbers as per GM06-2016, and WK Avg limitation for consistency in same table line.	7/2012
TRC (mg/L) *MO Avg:*	0.0087	0.0081	1/Day	3 per Day at 4-Hr intervals	Limits revised in accordance with current 2012 limitation evaluation and monitoring frequency revised in accordance with VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-2). See Item #16 for additional comments and **Attachment E**.	7/2012
TRC (mg/L) *WK Avg:*	0.010	0.0091				
Total Recoverable Zinc (mg/L) *(Interim)*, *MO/ WK Avg*	NC	NC	NC	NC	2007 permit limitation revised to *(Interim)* limitation in 2012 permit reissuance. Final limitation in accordance with current 2012 limitation evaluation. See Item #16 for additional comments and **Attachment E**.	7/2012
Total Recoverable Zinc (mg/L) *(Final)*, *MO/ WK Avg*	0.068	0.060	NC	NC		7/2012
E. coli (N/100 mL, geometric mean)	NR	126	NR	4 per Month (10am-4pm), grab	Added in accordance with VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-2) and 1/31/2012 DEQ PRO Staff Decision given permit is reclassified as a major municipal permit with this 2012 reissuance.	7/2012

Changes to Part I.A.1 (NA-Not Applicable; NL-No Limit; NC-No Change; NR-Not Required)						
Parameter Changed	**Effluent Limits Changed**		**Monitoring Requirement Changed**		**Rationale**	**Date**
	From	**To**	**From**	**To**		
$CBOD_5$ (kg/d), WK avg loading	43	42	NC	NC	Rounding error corrected as per DEQ GM06-2016. See Item #16 for additional comments.	7/2012
Hydrogen Sulfide changed to Dissolved Sulfide (mg/L)	NC	NC	NC	NC	Given current agency guidance (GM10-2003, revised August 25, 2011, Section MN-3), parameter is changed to distinguish between the analyte that is measured (dissolved sulfide) and the parameter that is calculated (hydrogen sulfide) and to require appropriate reporting of measured analyte for future evaluation. See Item #16 for additional comments.	7/2012
DMR Parameter codes added to all parameters for ease of reference, parameter abbreviations added as appropriate for improved clarity, and concentration unit "mg/l" and "/" monitoring frequency expressions changed to "mg/L" and "per" for clarity.						7/2012

Other Changes to Part I.A.				
From	**To**	**Special Condition Changed**	**Rationale**	**Date**
Part I.A.1 table legend		NL, NA	Wording revised slightly for brevity.	7/2012
		8 HC, TIRE	Added for clarity and consistency.	7/2012
Part I.A.1. footnote (a)		Design flow	Revised to include additional flow requirements permit reference. TIRE reference removed as it is a repetition of Part I.A.1 table entry.	7/2012
-	Part I.A.1.footnote (b)	Compliance Reporting	Added for clarity.	7/2012
Part I.A.1. footnote (c)		Significant digits	Slight wording changes, no content changes.	7/2012
Part I.A.1. footnote (b)	Part I.A.1.footnote (d)	TRC contact tank limitations	Language revised for clarity, inclusion of alternate disinfection notation, and updated permit reference.	7/2012
-	Part I.A.1.footnote (e)	4 per Month monitoring	Added in accordance with DEQ PRO staff QA/QC feedback received 9/27/2011.	7/2012
Part I.A.1.footnote (d)	Part I.A.1.footnote (f)	Schedule of Compliance	Changed reference from copper and zinc to zinc to reflect completed copper compliance schedule and new compliance schedule for revised zinc 2012 permit limitations.	7/2012
Part I.A.1.footnote (e)	Part I.A.1.footnote (g)	Sulfide QL	Language simplified for clarity.	7/2012
-	Part	1 per 6 Month monitoring	Added in accordance with DEQ PRO staff	7/2012

Other Changes to Part I.A.				
From	**To**	**Special Condition Changed**	**Rationale**	**Date**
	I.A.1.footnote (h)		QA/QC feedback received 8/31/2011 and 3/27/2012.	
Part I.A.2	Part I.A.1.b	No discharge of Floating solids, Foam	Revised document numbering, no content change.	7/2012
-	Part I.A.1.c	85% Removal Clause	Added in accordance with the VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-1). Also in accordance with the federal effluent guidelines.	7/2012
Part I.A.3	Part I.A.1.d	Effluent Sampling after post aeration	Revised document numbering, no content change.	7/2012
Part I.A.2 (0.99 MGD) and Part I.A.3 (2.0 MGD) new design flow tiers added to reflect monitoring and limitation requirements for Outfall 001 following issuance of respective CTOs of future planned facility upgrades, in accordance with the 2011/2012 permit application. Monitoring frequencies added in accordance with the VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-2). See Item #16 for additional comments.				7/2012

Changes to Other Special Conditions in Part I:				
From	**To**	**Special Condition Changed**	**Rationale**	**Date**
Part I.C	Part I.C.14	Schedule of Compliance (Copper,Zinc)/(Zinc)	Revised to reflect completed compliance schedules for copper and new compliance schedules for zinc.	7/2012
Part I.B	Part I.B	Additional Limitations and Monitoring Requirements, 0.75 MGD existing design flow	Slight renumbering format change and reference to CTO of 0.99 or 2.0 MGD facility upgrades added to reflect requirements prior to facility upgrades (for existing 0.75 MGD facility). Also, revised to reflect the VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3.B). The word “operating” was included in the term “each *operating* chlorine contact…” for clarity and consistency; this change differs from the permit manual. See Item #19 for additional comments.	7/2012
Part I.D.1	Part I.C.1	95% Capacity Reopener	Language revised slightly for clarity: “DEQ” inserted before “Piedmont Regional Office”.	7/2012
Part I.D.2	Part I.C.2	Indirect Dischargers	No changes	7/2012
Part I.D.3	Part I.C.3	CTC, CTO Requirement	Revised to reflect VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3.A).	7/2012
Part I.D.4	Part I.C.4	O & M Manual Requirement	Operations and Maintenance Manual – Updated in accordance with current agency guidance and DEQ program requirements as documented in email from DEQ-OWP&CA dated 4/3/2012.	7/2012
Part I.D.11	Part I.C.5	Materials Handling/Storage	Language revised to match VPDES Permit Manual boilerplate (GM10-2003, revised August 25, 2011, Section IN-3.A).	7/2012

Changes to Other Special Conditions in Part I:				
From	**To**	**Special Condition Changed**	**Rationale**	**Date**
Part I.D.6	Part I.C.6	Licensed Operator Requirement	Updated DPOR Board name as per 2009 DPOR Board name change.	7/2012
Part I.D.5	Part I.C.7	Reliability Class	Revised to reflect reliability class requirements for the existing design flow (unchanged), and the new facility flow tiers (Reliability Class I). See Item #24.b.ii for additional comments and **Attachment H**.	7/2012
Part I.D.7	Part I.C.8	Sludge Reopener	No changes	7/2012
Part I.D.8	Part I.C.9	Sludge Use and Disposal	Revised to reflect the VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3.A); the reference to VDH was removed.	7/2012
Part I.D.9	Part I.C.10.a	TMDL Reopener	Reformatted for water quality reopener addition.	7/2012
-	Part I.C.10.b	Water Quality Criteria Reopener	Added in accordance with the VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3.A), given the inclusion of monitoring for a water quality criteria parameter with no limitation (hydrogen sulfide/dissolved sulfide) and the requirement for Attachment A monitoring after CTOs for expansion.	7/2012
-	Part I.C.11	Closure Plan	Added in accordance with VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3.A) and included customized language in accordance with 5/29/2012 PRO staff decisions.	7/2012
Part I.D.10	Part I.C.12	Compliance Reporting	Revised to reflect VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3.A). $cBOD_5$ QL revised from 5.0 to 2 mg/L in accordance with recently adopted VPDES general permit regulations and 8/31/2011 PRO staff decision. QLs for copper and zinc revised to reflect 2012 MSTRANTI target values. See **Attachment E** and Item #20 above for additional comments.	7/2012
Part I.D.12	Part I.C.13	Pretreatment (Significant Discharger Survey) – formerly "Significant Industrial Users"	Revised per VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3.A) and PRO boilerplate (updated in accordance with PRO staff QA/QC feedback received 5/29/2012). Further addition made to reflect requirements upon facility upgrades. See Item #20 for additional comments.	7/2012
Part I.C	Part I.C.14	Compliance Schedule (Copper, Zinc)/(Zinc)	Revised to reflect completed compliance schedule for copper and new compliance schedules for zinc.	7/2012
-	Part I.C.15	Water Quality Criteria Monitoring	Added in accordance with the VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3.A) to reflect requirements for new effluent characterization following either of the planned facility upgrades. See Item #20 for additional comments.	7/2012

Changes to Other Special Conditions in Part I:				
From	**To**	**Special Condition Changed**	**Rationale**	**Date**
-	Part I.D	Whole Effluent Toxicity Testing	Added in accordance with the VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3.A) and TMP Guidance (GM00-2012). See Item #20 above and **Attachment G** for additional information.	7/2012
-	Part II.A.4	Conditions applicable to all VPDES Permits – Monitoring (VELAP)	New condition added to reflect change in laboratory accreditation requirements in accordance with VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-1.B).	7/2012

22. Variances/Alternate Limits or Conditions: The facility was designed and built to meet a monthly average TSS concentration of 30 mg/L prior to the stream being deemed "unmodelable" and the assignment of monthly average $cBOD_5$ and TSS limitations of 10 mg/L. With the facility's exemplary operation and maintenance, the 10 mg/L $cBOD_5$ limitation was achievable, but tertiary treatment would have been necessary to meet the 10 mg/L TSS limitation. A TSS limitation of 20 mg/L was determined as appropriate in the 2003 permit reissuance and carried forward with the 2007 permit reissuance. This approach remains consistent with other similar facilities and is carried forward with this 2012 permit reissuance.

23. Public Notice Information required by 9 VAC 25-31-280 B:
Comment period: Publishing Newspaper: *Independent Messenger*
Publication Dates: August 26, 2012 and September 2, 2012
Start Date: August 26, 2012 End Date: September 25, 2012

All pertinent information is on file and may be inspected or copied by contacting Tamira Cohen at:

Virginia Department of Environmental Quality (DEQ)
Piedmont Regional Office
4949-A Cox Road
Glen Allen, Virginia 23060-6296

Telephone Number 804/527-5012
Facsimile Number 804/527-5106
Email tamira.cohen@deq.virginia.gov

DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit. The public may review the draft permit and application at the DEQ office named above by appointment or may request copies of the documents from the contact person listed above.

Public Notice Comments: None

24. Additional Comments:

a. Previous Board Action: None.

b. Staff Comments:

i. The Boars Head Provisions Company in Jarratt was identified as a non-categorical significant industrial user of the facility in January 2006. The discharge received from Boars Head requires a partial pretreatment program be instituted. It is tailored specifically for this facility by the pretreatment coordinators at the Piedmont Regional Office of the DEQ. The specifics of the program are retained on file. The partial program does not exempt Three Creek from continuing to follow permit protocol regarding industrial user surveying and reporting.

ii. In accordance with the VPDES Permit Manual (GM10-2003, revised August 25, 2011, Section MN-3), and the general stormwater permit regulations (9 VAC-25-151-10), domestic or municipal sewage treatment works with design flows ≥ 1.0 MGD require VPDES permit coverage for stormwater discharges. Coverage can be obtained through the VPDES Stormwater General Permit (VAR05) or the existing VPDES individual permit through addition of storm water special conditions. Since the timing of the facility upgrades and the ultimate site drainage specifications for the 2.0 MGD facility are unknown at this time, the current 2012 permit reissuance does not provide any required coverage for storm water discharge. During the 2012 to 2017 permit term and prior to issuance of the CTO for the 2.0 MGD facility, the permittee is expected to elect one of the following options:

(1) Obtain storm water permit coverage for the facility operations through application and payment of a permit modification, or

(2) Obtain storm water permit coverage for the facility operations through application and payment of a storm water general permit (VAR05) , or

(3) Demonstrate and apply for no exposure certification exclusion as per 9 VAC 25-31-120 E.

iii. The new design flow tiers (0.99 and 2.0 MGD) are assigned Reliability Class I in light of the potential impacts of off-quality discharges on the receiving stream which has limited flows at the point of discharge (and public water supply intake located downstream). This is in accordance with DEQ recommendations and received VDH concurrence documented in email correspondence on 3/6/2012. See **Attachment H**.

iv. Financial assurance does not apply to this facility because it is a POTW.

v. The permit term has been shortened by less than one month in order to allow for an expiration date at the end of a complete calendar month in accordance with 10/25/2011 DEQ PRO staff decisions.

vi. This reissuance is not controversial.

vii. The permittee has paid the applicable annual maintenance fees (most recent deposit made 9/9/2011).

viii. The permittee is not a Virginia Environmental Excellence Program (VEEP) participant.

ix. The permittee has been an eDMR participant since 4/30/2008.

x. The permit is expected to be reissued within 120 days of application completion and prior to expiration on September 29, 2012.

xi. The discharge is not addressed in any planning document but will be included when the plan is updated [Chowan WQMP].

c. Environmental Protection Agency (EPA) Comments: None as per 8/7/2012 email.

d. Virginia Department of Health (VDH) Comments: In a memorandum dated February 23, 2012, the VDH advised that the raw water intake for the City of Norfolk waterworks is located approximately 42 miles downstream of the discharge and that this should be a sufficient distance to minimize the impacts of the discharge.

e. Threatened and Endangered Species (T&E) Coordination: T&E coordination is required for permit modifications where expansions or increases in flow are expected. Given the

expansion tiers permitted in this 2012 permit reissuance, coordination efforts were undertaken in order to identify any potential areas of concern. A T&E coordination effort was performed on June 18th 2012 for the facility discharge (and estimated mixing zones) in accordance with DEQ Guidance Memo No. 07-2007. A map, 2007 permit effluent limits, 2012 preliminary draft permit limits, T&E coordination form, and summary reports resulting from DGIF and USFWS online T&E queries were submitted to DGIF and USFWS by email on June 18th and 19th, 2012. The DCR coordination was conducted via the web-based DCR Natural Heritage Data Explorer. Two species were identified as "potential" state/federal endangered or threatened aquatic species (Roanoke logperch – *Percina rex*, and Atlantic pigtoe – *Fusconaia masoni*).

USFWS responded on July 5, 2012 with the comment that no impacts were anticipated to federally listed species or designated critical habitats.

DCR responded on July 12, 2012 listing the historical presence of a state and federal endangered species, Chowanoke crayfish (*Orconectes virginiensis*), and a state rare salamander, Dwarf waterdog (*Necturus punctatus*), in the receiving stream, Three Creek. DCR recommended the use of uv/ozone to replace chlorine disinfection and utilization of new technologies as they become available to improve water quality. A reply was sent July 13, 2012, indicating that treatment upgrades for improved effluent water quality were underway and that UV disinfection and further treatment upgrades were included along with the facility capacity expansion. A further comment was included indicating that permit effluent limitations at each design flow tier were developed to maintain the Water Quality Standards of 9 VAC 25-260 et seq. It is further noted that the consultant for the permittee has indicated via email correspondence (7/17/12) that the current chlorine disinfection system will be decommissioned and a full UV redundancy system will be put in place with the facility upgrade(s).

DGIF responded July 19, 2012 confirming that Three Creek is predicted habitat for the federal and state endangered Roanoke logperch – *Percina rex*, and the state threatened Atlantic pigtoe – *Fusconaia masoni* (mussel). A general recommendation for UV disinfection rather than chlorination was made and that the more stringent EPA 2009 Draft Ammonia Criteria be used to develop ammonia effluent limitations for this discharge due to concern that freshwater mussels are more sensitive to ammonia when compared to other freshwater aquatic organisms. A response was sent July 20, 2012 documenting that the reasonable potential analysis used for the 2012 permit reissuance was conducted based on the current Virginia Water Quality Standards (effective January 6, 2011) and that DGIF comments concerning the EPA 2009 draft ammonia criteria can be properly addressed as part of the Water Quality Standards triennial review process. Following that regular review process, any adopted revisions to the Virginia Water Quality Standards regulation will then be included in future permit actions. The results of this reasonable potential analysis conducted for the 2012 permit reissuance concluded that the additional water quality based effluent limitations are not necessary to protect the water quality of the receiving stream. DEQ believes that effluent discharge from this facility meets the requirements of the Water Quality Standards and the VPDES permit regulation and does not violate either the federal Endangered Species Act or the Virginia Endangered Species Act. It is not expected that the proposed facility discharge will pose a threat to T&E waters or associated species. Planned UV disinfection for the facility upgrades was further noted. See **Attachment I**.

f. Adjacent riparian landowners and localities notified of facility upgrade: 7 Greensville County landowners, Greensville County Administrator, and Emporia City Manager notified by letters dated June 20, 2012. An email request for riparian landowners was sent to the Greensville County Commissioner of the Revenue on June 20, 2012. With the assistance of the Greensville County Commissioner of the Revenue and the County GIS Specialist, addresses of all riparian landowners on both sides of Three Creek within one-half mile downstream of the discharge point (Outfall 001) were obtained on June 20, 2012 through the Greensville online property mapping service (via the Greensville County Geographic Information System). The City of Emporia identified one riparian landowner within one-half mile downstream of the

discharge point and provided the name and address on July 24, 2012. This riparian landowner was notified by letter dated July 26, 2012.

g. The draft permit package was released to the permittee on July 26, 2012. With the submittal of new free cyanide data, the draft permit was revised to eliminate the free cyanide limitation from all flow tiers. Additionally, following staff QAQC comments on 8/7/2012, Part I.C.1 was revised back to "sewage treatment plant" from "sewage treatment works" to ensure this special condition is only applicable to the plant's influent . The revised draft permit and fact sheet were released to the permittee on August 8, 2012. Permittee concurrence on the draft permit was received on August 21, 2012.

h. PDC/County Public Notice Notifications: By letters dated August 22, 2012 to: Dennis Morris, Executive Director of the Crater Planning District Commission; Peggy R. Wiley, Chairman of the Greensville county Board of Supervisors; K. David Whittington, Greensville County Administrator; Samuel W. Adams, III, City of Emporia Mayor; and Brian S. Thrower, Emporia City Manager.

i. DEQ OWP&CA and CO PCS Coordinator notified of change in permit classification: September 27, 2012.

25. Summary of attachments to this Fact Sheet:

Attachment A	Flow Frequency Memo and Ambient Data
Attachment B	Facility Diagrams and Location Maps
Attachment C	Stream Sanitation Memos
Attachment D	Site Inspection Report
Attachment E	Effluent Data Summary and Evaluation
Attachment F	Copper and Zinc Reduction Project
Attachment G	TMP Memorandum and approval
Attachment H	DEQ/VDH correspondence dated 3/6/2012
Attachment I	Threatened and Endangered Species Coordination